# Herbarium and Library New Wing

ROYAL BOTANIC GARDENS, KEW

# Herbarium and Library

# The opening by Her Majesty the Queen of the New Wing 14th May, 1969

A little more than a century ago a herbarium and library were established at the Royal Botanic Gardens in a Georgian house on Kew Green. The original building has since been enlarged several times to accommodate the growing collections. This booklet has been produced to commemorate the opening of the latest extension to the Herbarium and Library.

# Keepers of the Herbarium and Library

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|---|---|
| Black, Allan A. | 1853–1864 (*Curator of Herbarium*) |
| Oliver, Daniel, FRS | 1864–1890 (*Librarian, 1860–1864*) |
| Baker, John Gilbert, FRS | 1890–1899 |
| Hemsley, William Botting, FRS | 1899–1908 |
| Stapf Otto, FRS | 1908–1922 |
| Cotton, Arthur Disbrowe | 1922–1946 |
| Turrill, William Bertram, FRS | 1946–1957 |
| Hubbard, Charles Edward | 1957–1965 |
| Brenan, John Patrick Micklethwait | 1965– |

*Cover :* Architect's sketch of the New Wing

# Herbarium

In January, 1838 Parliament authorized an investigation of the neglected royal gardens at Kew, which were then the private property of the Crown. A small committee, headed by John Lindley, was appointed, and their subsequent recommendations laid the basis for the future policy and status of the gardens. Parliament accepted their proposal that the gardens should become the responsibility of the State and reconstituted as a botanic garden and scientific institution worthy of the nation. One of the observations made in the Lindley Report was that the plants in the gardens could not be properly identified and named unless 'aided by an extensive herbarium and considerable library.' These two requirements were to be immediately fulfilled with the appointment, in April, 1841, of Sir William Jackson Hooker as the first Director.

Prior to this appointment, Sir William Hooker had been Regius Professor of Botany at Glasgow University, and the possessor of what was probably the largest herbarium and library in private ownership in the whole of Europe. When Sir William arrived at Kew he discovered that there was no official herbarium or library. W. T. Aiton, in handing over control of the small botanic garden, kept all the books, drawings and correspondence considering them to be his own property. This was to have disastrous consequences, for when he died in 1849 his brother burned all his documents and letters and so deprived posterity of an intimate record of the administration of Kew over a period of some fifty years. Fortunately the drawings escaped the fire and were later restored to Kew. Aiton had also kept a small herbarium in Descanso House, consisting mainly of specimens of garden plants and a collection of British plants made by Robert Teesdale whilst a gardener at Castle Howard. On Aiton's death this entire collection was sold, the greater part being purchased by a London seedsman for a very small sum. But a far more important herbarium had been stored in a garden shed; it represented collections made in South Africa, Brazil, Australia and New Zealand by the two Kew collectors, Allan Cunningham and James Bowie, and is now in the British Museum (Natural History).

Sir William Hooker had to depend entirely on his own herbarium and library which filled many rooms in his house nearby at West Park. In 1846 he petitioned the Commissioners of Woods and Forests that he should be relieved of the expense of maintaining his herbarium, which was often the sole reason for many botanists coming to Kew. He offered it as a gift to the nation on condition that it was retained at Kew and that his son, Joseph, was appointed as his assistant and successor. This offer was declined but some small aid was provided in the way of mounting-paper and presses. In 1847 the herbarium had outgrown both the house and stables at West Park, and Sir William, in a letter of 28th December, informed his father-in-law, Dawson Turner, that he had 'removed a good portion of [his] Herbarium to the Garden' where it was placed in a cottage.

In the summer of 1852, the beginnings of an official herbarium and library were made with the presentation of the collections of the late William Arnold Bromfield, a notable British botanist with a special interest in the flora of the Isle of Wight. This valuable gift had to remain in packing cases in a garden shed because suitable accommodation was nowhere to be found. On 27th September, 1852, Sir William enquired of the Chief Commissioner of Works whether the Bromfield bequest and his own herbarium and library could be temporarily housed in the Kew residence of the King of Hanover, who had died the previous year. On 30th November, 1852, he was informed that 'Her Majesty had been pleased to sanction the appropriation, for a limited period, of the ground floor of the King of Hanover's House at Kew to the reception of your Herbarium.'

This house, a Georgian dwelling of the mid-eighteenth century, stands on the north side of Kew Green, and at one time was the residence of Peter Theobald, a gentleman of wealth and a local benefactor. After the death of his widow in 1796, it was purchased by Robert Hunter, a London merchant, and a fellow Scot and friend of William Aiton, who supervised part of the royal gardens at Kew. Robert Hunter died in 1812, and six years later the Prince Regent bought the house from his eldest son. The purchase was recommended by Sir Joseph Banks, who, for forty years, had been intimately connected with the management of Kew Gardens. His intention was to establish a herbarium and library there with Francis Bauer, the celebrated botanical artist, as the first Librarian. In 1820 book shelves were actually fitted into the small room on the right of the front entrance. According to Loudon's *Gardener's Magazine* (vol. 17, 1841, p. 187) 'all the botanical books in the King's library were to be removed there, and some had, in fact, been sent down, when, unfortunately, a dispute arose respecting the land, to which the Woods and Forests [Department] laid claim; and some artillery wagons driving off with the bookcases gave Mr. Bauer the first intimation that the plan had been abandoned.' In 1820 Sir Joseph Banks died, bequeathing his herbarium and library to the British Museum, but giving Robert Brown, his librarian, the use of it during his lifetime, on condition that he continued his scientific aid to Kew.

Hunter House remained empty until 1830 when William IV granted it to the Duke and Duchess of Cumberland. The Duke of Cumberland's unpopularity, particularly with the Royal Family, compelled him to spend a great deal of time abroad, mainly in Hanover where he succeeded to the throne in 1837. Consequently, he did not make much use of his Kew Green residence. His death in 1851 rendered the house available to Sir William Hooker, and Bromfield's and Hooker's herbaria and libraries were housed in it, but Sir William's collections were kept separate, although equally accessible to the public. For many years Hooker had personally paid a Curator to look after his herbarium, but in 1853 Allan A. Black was appointed Curator of the Herbarium, and his weekly salary of sixteen shillings was met by the government. The following year George Bentham's most generous offer of his herbarium and library was readily accepted. Bentham's herbarium was about a fifth of the size of Sir William's. In a letter in 1872 to the Earl of Derby, Bentham wrote: 'I was induced in 1854 to offer my own botanical collections, accumulated during 35 years, together with a working botanical library of about 1,000 volumes to the national establishment at Kew, as the one which gave the greatest security for its being maintained, extended, and applied to the use of science.'

Sir William's herbarium and library, now enriched by the collections of Bromfield and Bentham, established Kew as a major centre of taxonomic research for Great Britain and the Colonies, and also attracted botanists from other countries. The *Kew Annual Report* for 1857 reported that more than fifty scientists, many from overseas, had been engaged in special studies in the Herbarium. The Director's personal herbarium, which was still kept separate from the other collections, continued to grow, and Sir William was naturally concerned about its uncertain future. He met with no favourable response when he offered it to the government at a price well below its true valuation. In March, 1865, he prepared a memorandum which was to be presented after his death to the First Commissioner of Works. He described the extent and value of his collections, and the sacrifices he had made in forming and maintaining them for public use. He made it quite clear that his son, Joseph, now Assistant Director, would not be able to maintain them. 'Unlike me he inherits no competency, and he has a young family to bring up. Pecuniarily, it would be obviously to his interest to break it up and dispose of it; but this is a step which neither of us would willingly contemplate, and which would be reprobated by the whole scientific world. It is, therefore, my earnest desire that at my decease, the Chief Commissioner of H.M. Works should represent to Her Majesty's Government (to whose service nearly half a century of my life has been devoted) the propriety of purchasing the Herbarium at a fair valuation, and depositing it at Kew as part of the Crown property and attached to the Royal Gardens.'

Shortly after Sir William Hooker's death in August, 1865, a memorial signed by many eminent British botanists, urging the purchase and retention of his herbarium and library at Kew, was presented to the First Commissioner of Works. In October, 1867 the Treasury finally agreed to purchase the collections for £7,000. Hooker's herbarium, amassed over sixty years, contained about 1,000,000 named specimens from many parts of the world. Among some 4,000 volumes, which were selected from his library, were the finely illustrated works of Humboldt, Martius, Jacquin, and a set of the rare and costly *Flora Graeca* by Sibthorp. The comprehensive collection of botanical pamphlets totalled 228 volumes. Of unique value was Sir William's vast correspondence, between the years 1820 and 1865, with scientists, travellers and collectors all over the world. Also included in the purchase was a collection of 116 portraits of botanists: engravings, drawings, silhouettes and medallions.

The reputation of Kew as an international centre of botanical research was enhanced by the acquisition of further important collections. The following collections were amongst those received during the last ten years of Sir William's life: a large collection made by Dr. Thomas Thomson in north-west India; eleven wagon-loads from the cellars of India House, amongst which were discovered the herbaria of Falconer and Griffith; William Borrer's British herbarium; the Australian herbaria of Allan and Richard Cunningham; Dr. John Lindley's orchid herbarium; and Dr. W. J. Burchell's immense collections made in St. Helena, South Africa and Brazil.

The steady expansion of the Herbarium continued under Joseph Hooker, who succeeded his father as Director. In 1868, the herbarium, botanical manuscripts and correspondence of the eminent French botanist, Jacques Gay, were purchased by Hooker himself and presented to Kew. Hunter House, which was only ever intended as temporary accommodation, besides being almost full, was proving to be a most unsuitable building for housing a large herbarium. In November, 1874 the Director

recommended to the Treasury the erection of an extension to the house. To his surprise he encountered opposition from the Cambridge family, who lived on Kew Green, particularly from the Duchess who was set against any alteration to the house and surrounding garden. Neither was Lord Lennox, the First Commissioner of Works, very sympathetic. Hooker rejected a proposal that the new Herbarium should be built in the Melon Yard in Kew Gardens, and complained bitterly in a letter to Charles Darwin about the whole affair. 'Meanwhile he [Lord Lennox] is moving heaven and earth with the people about the Queen to prevent the Herbarium being kept in the Queen's private grounds, for a small piece of which I have asked (as a site for the new building). He insists on my finding a site for it in the public part of the Gardens! which I absolutely refuse to do, except the Queen refuses a corner of the ground where the Herbarium now is' (16th August, 1875). Joseph eventually got his own way, and in October, 1875 Lord Lennox informed him: 'I have at last obtained the requisite permission for placing the Herbarium on the site selected by you—with the condition that it shall not be near to or interfere with the Palace at Kew.' Then in the following January the startling discovery was made that Hunter House and grounds did not in fact belong to the Queen because in July, 1823 George IV had sold the property to H M Commissioner of Woods and Forests for £18,250 in order to pay some of his debts. Hooker was jubilant and told Asa Gray of his plans: 'I shall retain the present building for the library and writing rooms, render them sufficiently fire-proof, and throw out an herbarium hall at the back in the same style of architecture that suits the site and surroundings. I am all the more glad of this as George III [*sic*—Prince Regent] had given the building originally for a library and Herbarium, and Banks had begun to have it fitted up as such, when his death stopped it all, and it reverted to the King's use' (12th March, 1876). The drawing room, south room, kitchens and out-buildings were demolished to make way for the new wing which was opened in 1877.

Before his retirement in 1885, Sir Joseph Hooker was responsible for some further important additions to the collections. In 1871 Dr. R. Wright presented his Indian herbarium, the result of thirty years' collecting. Between 1878 and 1882, the contribution of the mycological herbarium of the Rev. M. J. Berkeley, the mosses collected by Dr. Schimper, and the lichens of the Rev. W. A. Leighton greatly enriched the cryptogamic section of the Kew Herbarium. With all these collections pouring into Kew it was inevitable that the new wing was soon to be full. The lower cryptogams were stored in the small room originally shelved by Sir Joseph Banks (now the Visitors' Room), with the Algae and Lichens in the small adjacent room, while the Ferns were kept in the present Keeper's Office. And so permission was given to construct a second wing (Wing B), which was started in 1901, and in occupation two years later. A further extension was built in 1931-32 (Wing A), and the latest wing after years of careful planning and fortunate evasion of financial crises was completed in 1968.

During the present century the Kew Herbarium has grown rapidly in size, enriched by collections from many parts of the world, particularly from tropical countries now made more accessible by swifter and more efficient means of travel. Specimens are contributed by institutions and individuals, both governmental and private. So many are the contributors that it is not possible to enumerate them here, even those who have given most. Special mention must be made, however, of the magnificent Wallich Herbarium, so rich in specimens made by early 19th-century

Working bay in the Herbarium

collectors in India, which was transferred to Kew in 1913 through the generosity of the Linnean Society of London to whom it had originally been given by the East India Company.

The Kew Herbarium now contains between four and five million mounted specimens, including some 200,000 types, and provides an unrivalled reference index to the plants of the world, in which a fairly high proportion of all the known species is represented. Additions are made at the rate of some 50–60,000 per year although greater emphasis is now being placed on quality rather than quantity of specimens. Many duplicates are presented to other botanical institutions, and other valuable specimens are received by Kew in exchange and, indeed, this has always been one of the principal ways in which the Kew Herbarium has grown in scope and richness.

The families and genera under which the specimens in the Herbarium are grouped are arranged in general according to Bentham and Hooker's *Genera Plantarum*. Within each genus, however, the arrangement is primarily geographical.

Supplementing the main collection of dried plants there is a spirit collection of more than 30,000 glass jars containing flowers and fruits in liquid preservative. This unrivalled collection is particularly necessary in studying plants, orchids for instance, the structure of whose flowers is difficult to interpret after they have been dried, or plants with large fleshy fruits. There is, furthermore, an extensive carpological collection of bulky fruits which cannot easily be pressed, and also a seed collection. These are stored in boxes or tins.

This vast collection of dried plants has been and is still constantly used for its primary purpose of research into problems of plant classification and identification. Many of the results of this research are made available in the form of Floras. The long series of Commonwealth and Colonial Floras prepared at Kew was initiated by Dr. Grisebach's *Flora of the British West Indian Islands* (1859–64). At present, the Royal Botanic Gardens is actively engaged on *The Flora of Tropical East Africa, The Flora of Cyprus, The Flora of Iraq,* the second edition of *The Flora of West Tropical Africa,* and is also playing an active part in the *Flora Zambesiaca. The Fungus Flora of Venezuela* is also in an advanced stage. It will be seen that a considerable part of the continent of Africa is at present covered by Floras in course of production at Kew. Assistance is also given in the preparation of other Floras for which Kew does not have primary responsibility.

The results of the taxonomic research carried out in the Herbarium are mostly published in the *Kew Bulletin,* a periodical which, with its various supplements, now comprises 95 volumes. The *Botanical Magazine,* with its splendid colour-plates, is the oldest botanical periodical still being published, having been founded in 1787, but since 1841 edited and mainly written at Kew, although now published in conjunction with the Royal Horticultural Society. It comprises no less than 176 volumes, including more than 10,000 coloured plates of different plants. The *Icones Plantarum,* also prepared at Kew since 1841, is a periodical containing black-and-white illustrations and descriptions of new or noteworthy plants in the Kew Herbarium. It was founded in 1836, since when 37 volumes have been published with more than 3,600 illustrations.

Genera and species of plants are normally referred to scientifically by their Latin names. All new Latin names for genera and species given to flowering plants are indexed at Kew from the botanical literature of the world and, together with their place and year of publication and the country of origin of the species concerned, are recorded and published in the *Index Kewensis.* This great and indispensable work, whose first two volumes were originally published in 1895, is an alphabetical list of all published scientific names of flowering plants. A new supplement is normally prepared every 5 years, of which number XIII, for the period 1956–60, was published in 1966.

What the *Index Kewensis* is for names, the *Index Londinensis* is for plant illustrations. This latter work, prepared at Kew and published by the Royal Horticultural Society, consists of 8 quarto volumes and lists illustrations of flowering plants and ferns from 1753 onwards. The compilation of a new supplement covering the period 1936–60 is at present being undertaken at Kew.

A new edition of Willis's indispensable *Dictionary of Flowering Plants and Ferns* was published at the end of 1966, the work on its compilation having been carried out at the Herbarium under the aegis of the Bentham-Moxon Trust. Kew has also taken over responsibility for preparing future supplements of *Index Filicum,* an index of ferns analogous to the *Index Kewensis.* Compilation of the supplement for the quinquennium 1961–5 has now been completed.

# Library

During an Enquiry conducted by the Trustees of the British Museum in 1858 George Bentham declared: 'It is absolutely necessary for the good use of a herbarium that it should be in close connection with a good botanical library. A botanical library is useful without a herbarium, but not a herbarium without the library.' The importance Sir William Hooker attached to his library certainly endorses this dictum. According to his son, he bought every obtainable botanical work, and their sheer quantity eventually demanded the services of an assistant to look after them. In January, 1860 he was given permission by the Office of Works to employ Dr. Daniel Oliver, an assistant in the Herbarium, as a cataloguer. On 1st April, 1860, Dr. Oliver was appointed Keeper of the Library and Drawings Collection at a weekly salary of £2, provided he continued his lectures to the young gardeners. When ill-health compelled Allan Black to resign the Curatorship of the Herbarium in 1864, Dr. Oliver was appointed the first Keeper of the Herbarium and Library, a post which he held until his retirement in 1890. The nucleus of the present library was formed in 1852 when Miss Bromfield presented the library of her late brother, Dr. W. A. Bromfield; it was a small but well-chosen collection of about 600 volumes, notable for the number of fine copies of earlier botanical authors. Two years later George Bentham handed over his large botanical library, which included many standard texts.

In 1867 the Treasury sanctioned the purchase of such of Sir William Hooker's books as were needed for the Kew Library, which thereby acquired some exceedingly rare items. Later bequests included the library of John Ball (1889), the first President of the Alpine Club—his library was outstanding for its coverage of the European flora; in 1892 Thomas Hanbury of La Mortola, Italy, presented a selection of books from the library of his late brother, Daniel Hanbury, a well-known pharmacologist. For many years the library has been kept principally in Hunter House itself; in 1877 the small front rooms on the first and second floors were made into two big rooms, each about 40 feet long, thus permitting many scattered collections to be brought together.

Although the Library reflected the interests of taxonomists, the basic needs of the young gardeners were never neglected. On the appointment of Sir William in 1841, a small separate library was established for them. In 1846 the First Commissioner of Woods and Forests, the Earl of Carlisle, gave £10 for books for the gardeners. At first they were kept in an old office in the Gardens, but in 1848 a foreman gardener's residence, now the Director's Office, was partially converted into a reading room which was open in the evenings. In 1863 a new reading room was built adjacent to the Director's Office, and in 1898 the library was transferred to its present quarters in Descanso House.

Through the years the Kew Library has been made as complete as possible by gift, exchange and purchase. In his will George Bentham left a substantial part of

The Library

his estate to Kew for, among other things, 'the purchase of books', and it is largely due to the generosity of the Bentham—now the Bentham-Moxon—Trust that so many gaps in the library have been filled. The Trust has always been ready to buy rare and often expensive books when they have become available; their presentations include such choice works as the three *Hortus Sanitatis* of 1490, 1491 and 1496, Conrad von Megenburg's *Buch der Natur*, 1482, *Le Grant Herbier en Francois*, c. 1526, L. Fuchs's *New Kreüterbuch*, 1543, J. Parkinson's *Paradisi in Sole Paradisus Terrestis*, 1629 and Redouté's *Choix des Plus Belles Fleurs*, 1827–33.

The Library now totals some 100,000 volumes covering the fields of plant taxonomy, anatomy, physiology, cytogenetics, economic botany and horticulture. Some very important ancillary collections must be mentioned and, here again, the Bentham-Moxon Trust has been a constant benefactor. In 1898 the Trust purchased a portion of Sir Joseph Banks's correspondence, formerly the property of Lord Brabourne. In view of Banks's long and close association with Kew this was a particularly welcome acquisition. The archives at Kew now number about 250,000 letters and other manuscripts. The largest single collection is that of Sir William Hooker with about 29,000 letters from over 4,000 individuals, many of whom were eminent botanists, travellers, plant collectors and administrators.

The collection of flower drawings, engravings and photographs now exceeds 150,000 with examples of the work of many distinguished and skilled botanical artists. From time to time special collections have been acquired. In 1880, 3,359 drawings of Indian plants, including those prepared for William Roxburgh, were

transferred from the India Office to Kew. More recently, in 1966, the Library acquired a further collection of 394 Indian drawings assembled by Dr Heyne, a contemporary of Roxburgh. Through the presentation in 1916 of 67 drawings belonging to Sir Arthur Church, Kew can boast examples of the work of early flower painters such as Simon Verelst and Justus van Huysum. The Bentham-Moxon Trust made two particularly important contributions: in 1887 the splendid drawings of Bromeliads made for Dr. Morren of Liège, some of which are of an impressive size, and in 1932 648 drawings which were done in the eighteenth century for the 4th Earl of Tankerville. Among the latter are some superb water-colour drawings on vellum by the incomparable G. D. Ehret, and a number by the obscure but, nevertheless, competent Simon Taylor. In 1854 Mr. Atwell Smith, the natural son of John Aiton, presented over 2,000 drawings by George Bond and Thomas Duncanson, two young gardeners who were employed by W. T. Aiton to draw the plants in cultivation at Kew from about 1822 to 1835. Additions are still being made to the drawings collection, principally through the work of the resident botanical artist, and the plates which are figured in the *Botanical Magazine*.

Back of Hunter House as it was before the first wing of the Herbarium was added

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